The Standard Autonomous File Server, A Customized, Off-the-Shelf Success Story

Annette M. Conger, Raytheon
Susan K. Semancik, Code 584
NASA Goddard Space Flight Center's Wallops Flight Facility
Wallops Island, Virginia USA

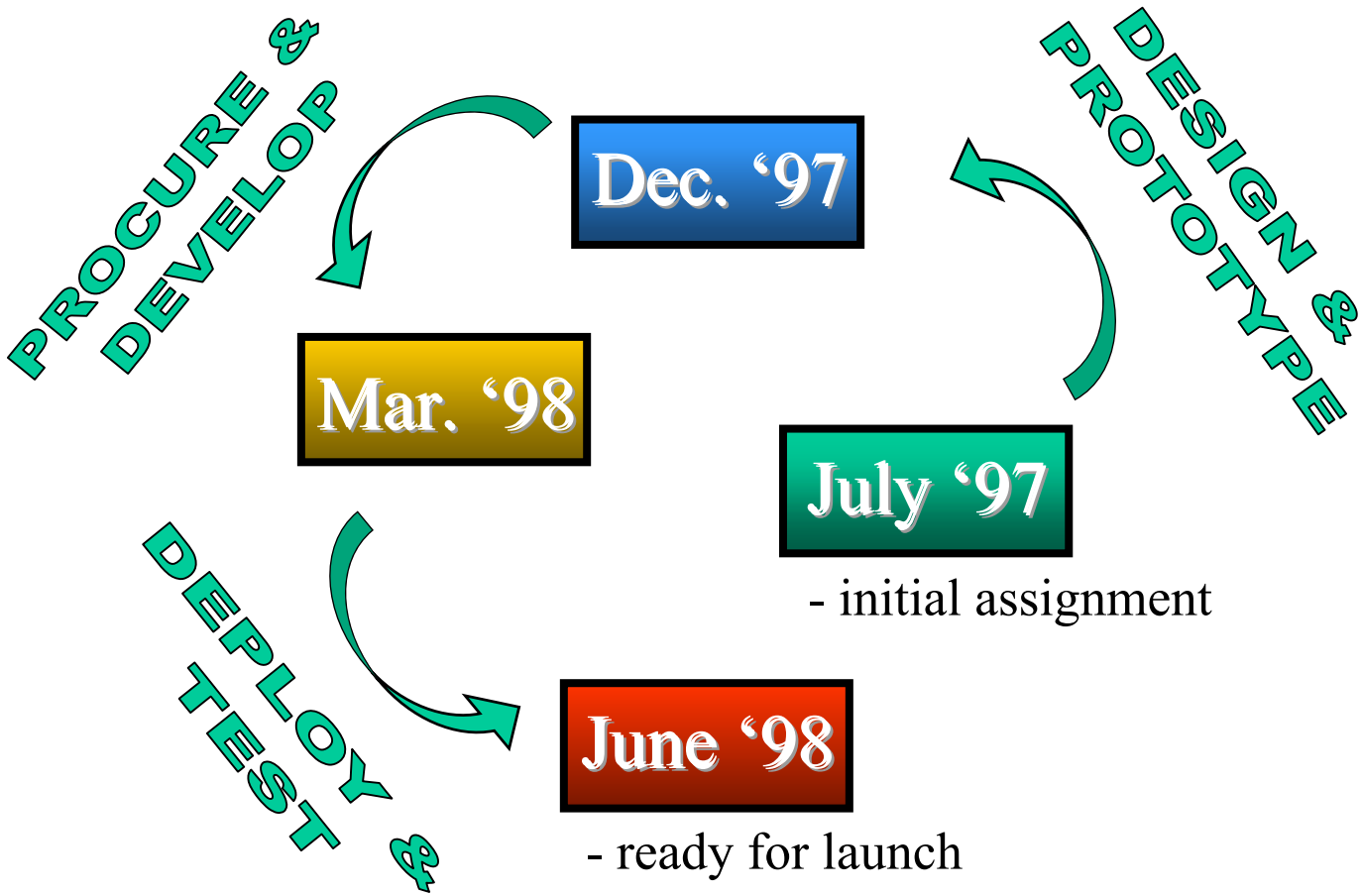
SAFS: Purpose and Assignment

The purpose of the Standard Autonomous File Server (SAFS) is to:

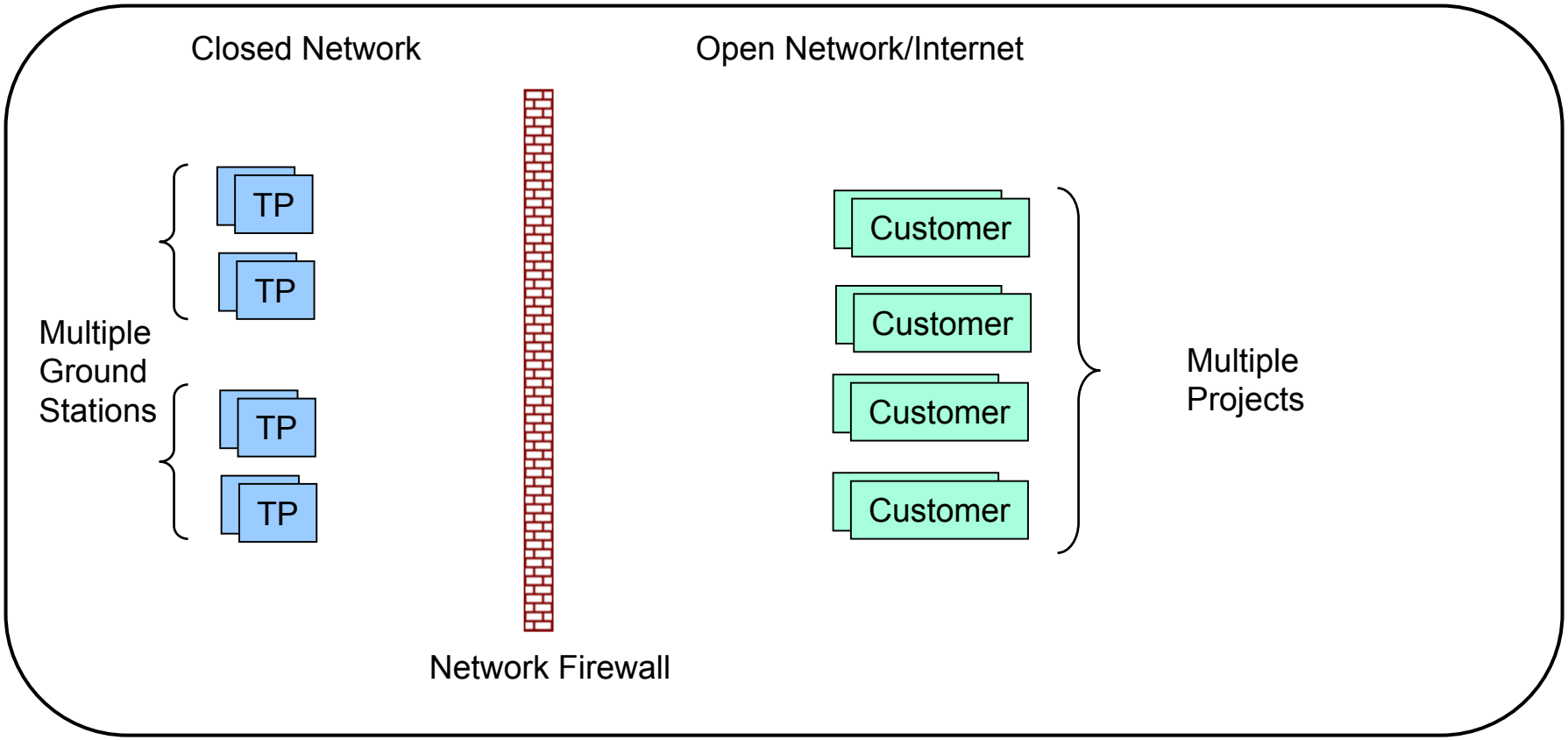
- provide automated management of large data files without interfering with data acquisition, and
- provide customers access to these files in a timely fashion without interfering with their processing.

TASK: In less than one year, design, develop, deploy, and field-test SAFS systems at NASA ground stations in Alaska and Norway, and manage distribution of their satellite files to customers in near real-time.

SAFS: Timeline

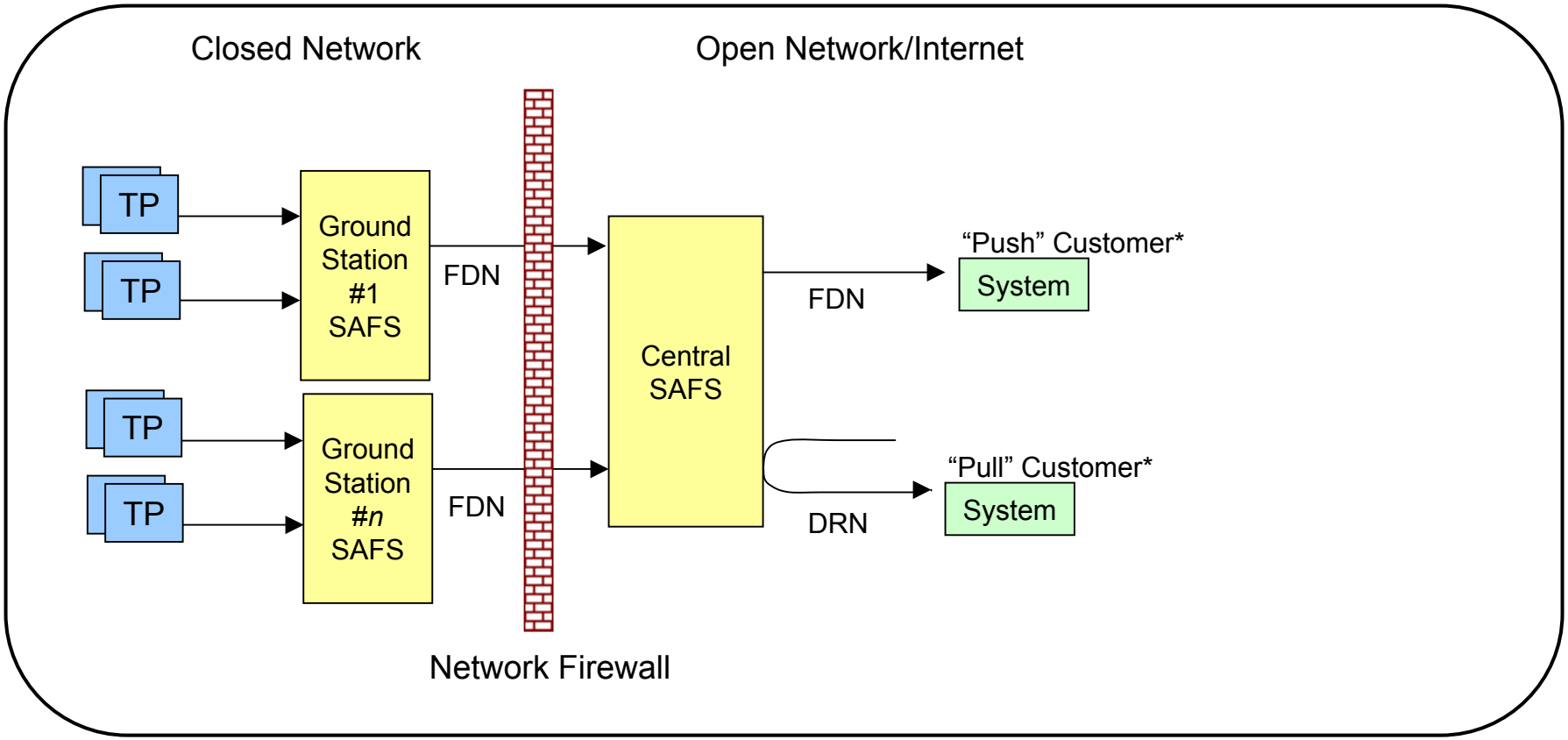


SAFS: Operational Environment



TP Telemetry Processor

SAFS: Placement of Systems



FDN	File Delivery Notification
DRN	Data Ready Notification
SAFS	Standard Autonomous File Server
TP	Telemetry Processor

* Multiple Projects supporting multiple customers per project

SAFS: Design Requirements

What SAFS does:

- Requires no human interaction for nominal operations.
- Provides for transfer status messages to and from customers.
- Allows customers to “pull” data.
- Provides for data “push” to customers.

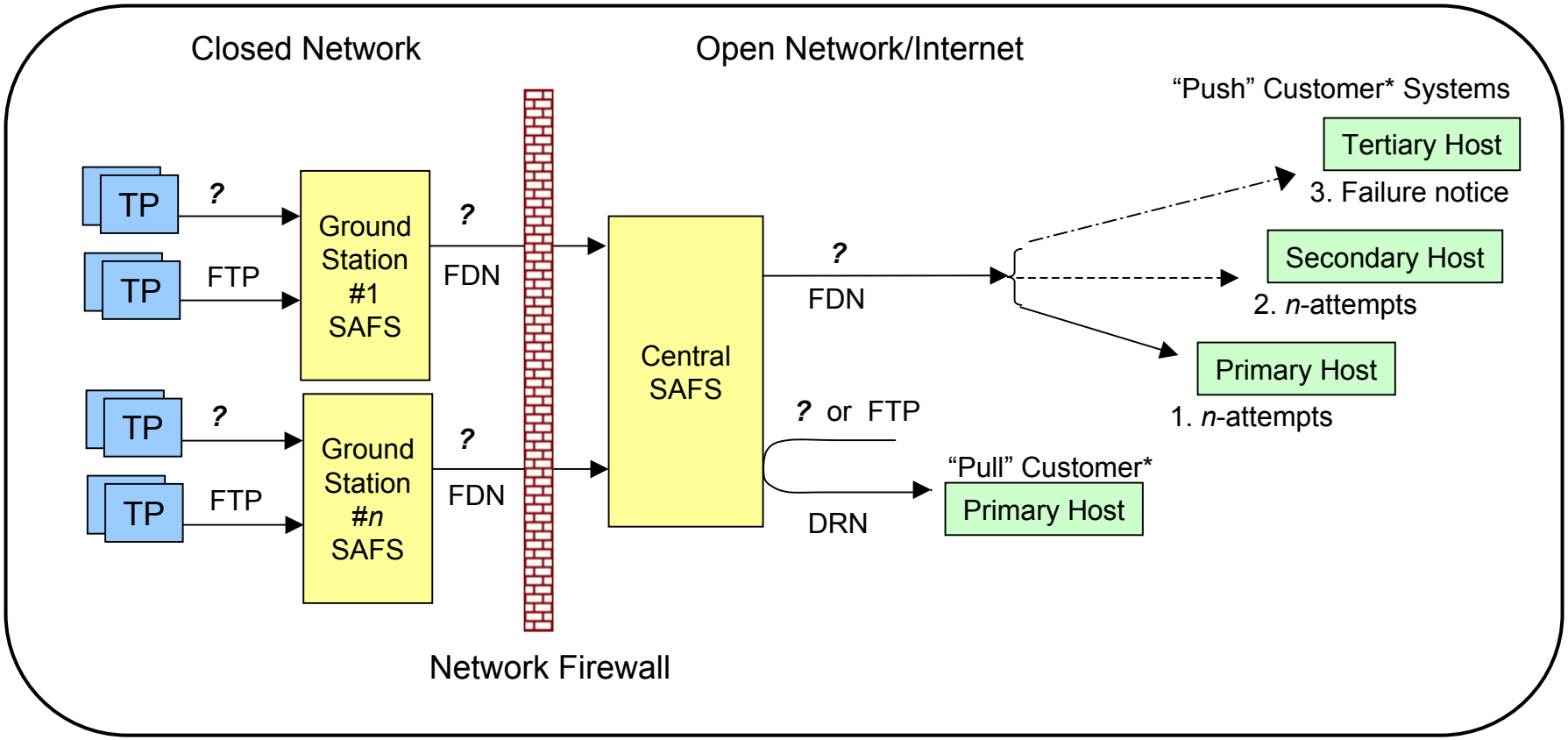
What SAFS does NOT do:

- Does not perform data compression, file splitting, or data encryption.
- Does not perform as a data archival system.

SAFS: Desired Transfer Protocol Features

- Reliable, guaranteed file delivery
- Recovery from point of failure
- Multi-platform support
- Stop-resume transmission control
- Auto-detection of incoming files
- Processing flexibility:
  - Multiple distribution points
  - Pre-/post- processing capability
  - Alternative actions on failed transfers
- File transfer security
- Programmable bandwidth

SAFS: Enhanced Delivery Scheme



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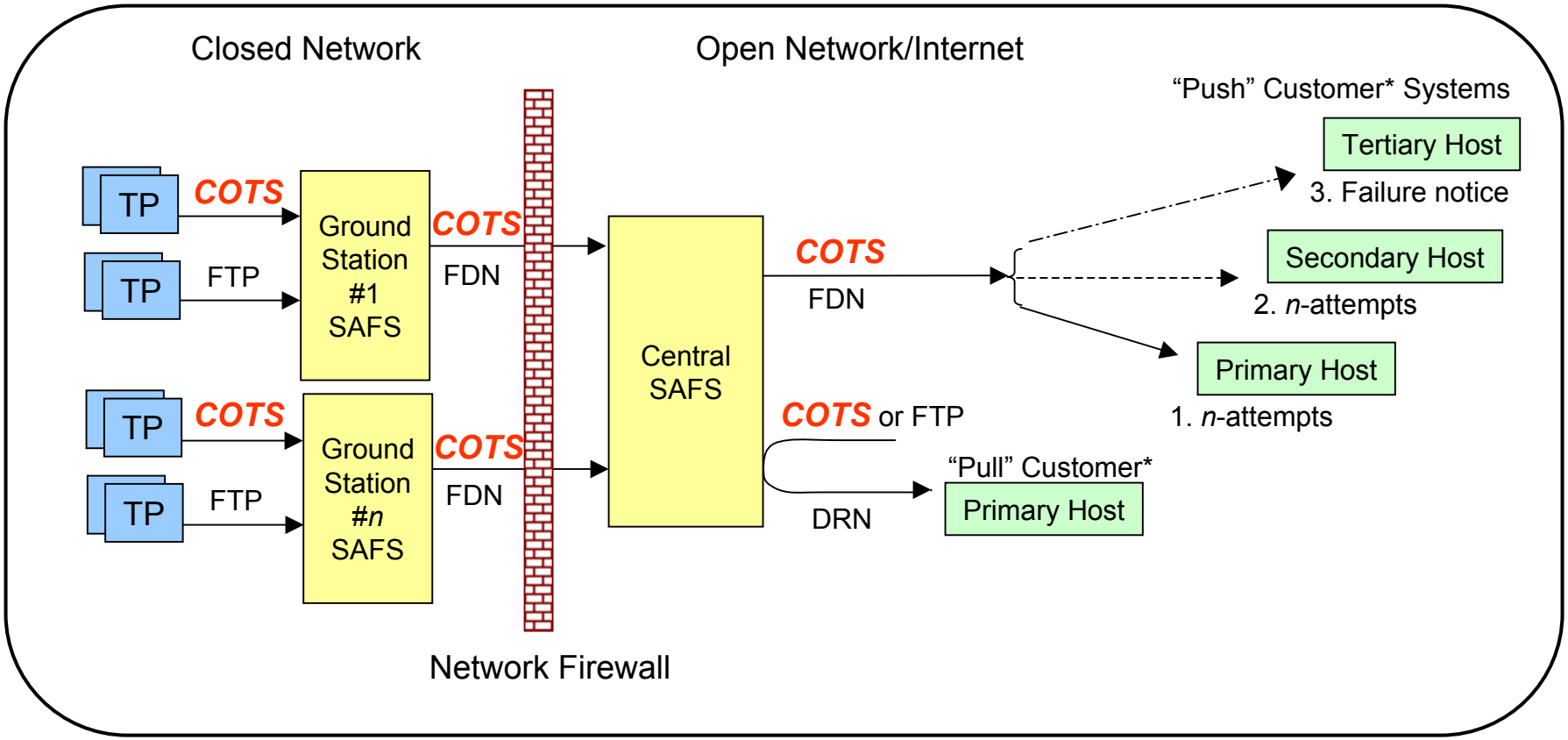
SAFS: COTS Dependency



COTS	File Transfer Software
FDN	File Delivery Notification
FTP	File Transfer Protocol
DRN	Data Ready Notification
SAFS	Standard Autonomous File Server
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SAFS: Concerns With COTS Products

What if:

- the vendor goes out of business or drops the product you've chosen?
- future versions of the product change or eliminate features you were depending on or around which you built your application?
- the product does not operate/function as advertised (and you don't discover this until you are deep into your development/schedule)?
- the product has errors/bugs that the vendor won't/can't correct, or is willing to correct, but not in time to meet your schedule?
- future versions won't operate on your platform, or version of the operating system, or become incompatible with your hardware components or drivers, and the new versions have fixes or features you need?

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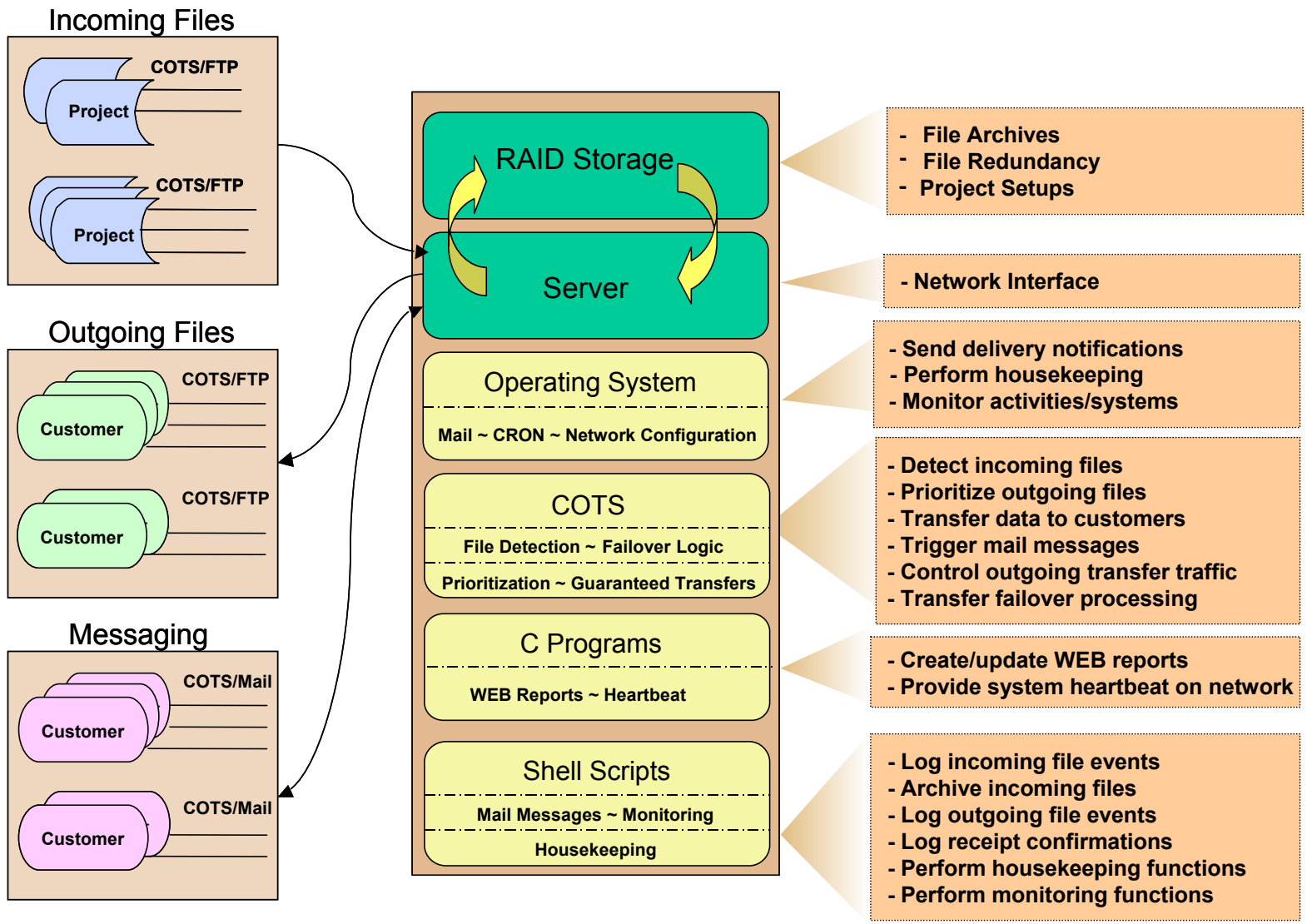
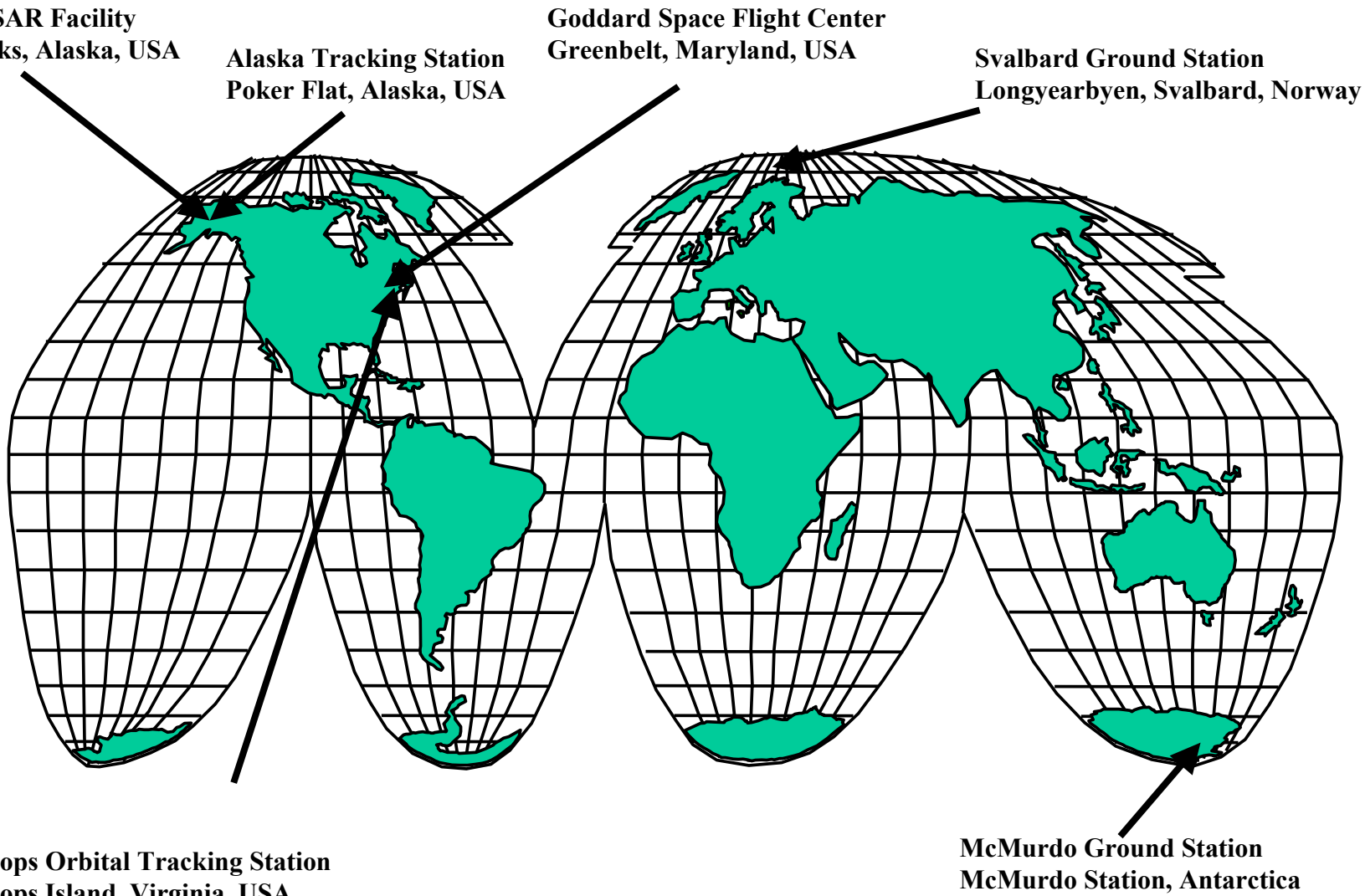
SAFS: System Components and Functionality



SAFS: Lessons and Impacts (Continued)

6. DEPLOY a. Personally perform on-site installs when possible.	- Gives info about field configuration and operating environment; opportunity for field staff rapport.
7. MAINTAIN a. Have support/maintenance contracts for HW and SW through development and first year of operation.	- Saves time and your sanity; use support for optimal configuration and integration of COTS into system.
b. Obtain feedback from end users.	- Identifies problems early; provides more flexible design; gives indication of system performance during operations.
c. Maintain prototype after systems deployed.	- Provides non-operational test-bed for enhancements, configuring upgrades, and problem resolutions.
d. Don't approve all requests for additional options by customers or new projects that come on line.	- Avoids compromising system performance or making system less generic, or more difficult to maintain..

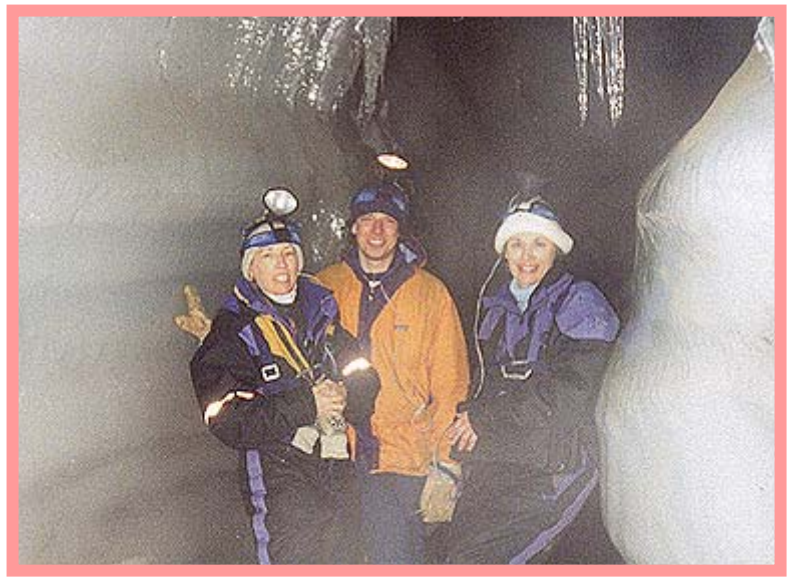
SAFS: Station Locations



SAFS: Contacts

Susan K. Semancik
NASA/Goddard Space Flight Center/584W
Susan.K.Semancik.1@gsfc.nasa.gov
(757) 824-1655

Annette M. Conger
Raytheon/972
Annette.M.Conger.1@gsfc.nasa.gov
(757) 824-2596



URL: http://www.wff.nasa.gov/~websafs/